

MASTER OF NUMBERS

THE MAN WHO KNEW INFINITY: A Life of the Genius Ramanujan by Robert Kanigel.
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In 1913, G.H.Hardy, the preeminent mathematician of his time, received a letter from a clerk in the Port Trust at Madras. The letter contained several pages of mathematical results which were absolutely astounding. And all this from a man not in Cambridge or Paris but in remote Madras, and to top it all, without any formal training in Mathematics! Thus began the process of discovery and recognition of Srinivas Ramanujan, one of the greatest Mathematicians of his time.

Robert Kanigel's account of the life and work of this enigmatic personality is exhaustive and yet immensely readable. Born in a poor Brahmin household in Kumbakonam, Tamil Nadu, Ramanujan had an uneventful schooling. The only thing which set him apart from an ordinary schoolboy was a passion for Mathematics. Failing to obtain an Intermediate degree in several attempts, left him depressed, specially now that he was married and had to get a job. Kanigel gives a detailed account of his early years; of life in a small town in the heyday of colonialism, of his struggle for a job and of his relationship with a domineering mother. Based on conversations and painstaking research into documents of that time, his account of Ramanujan's formative years is vivid and powerful.

Ramanujan's access to Mathematical literature was very limited. Yet, he was able to arrive at results which were amazing. With these results, he was able to convince some people of his abilities and landed up with a job as a clerk in the Port Trust at Madras. The description of these years in "search of patrons" is indeed touching. The disappointments and frustrations of a creative genius are brought out well. One particularly notable incident is the use of the slate by Ramanujan because his penury did not allow him to afford paper. And in an appropriately acerbic aside, the author tells of a paper manufacturer from his birthplace, advertising in the Ramanujan Memorial volume, "Paper, the Great Immortalizer"!

Hardy was sufficiently impressed and intrigued by this young man from Madras to arrange for his coming to Cambridge. This was the beginning of a relationship between them which lasted till Ramanujan's untimely death at age of 33. Robert Kanigel devotes a substantial part of his book to Hardy; his life, his legendary intellectual honesty, his work as also the atmosphere in Cambridge at that time, with the clouds of the Great War gathering over Europe. Ramanujan could never really adjust to England. The weather, the food and lack of friends all added up. He fell sick and was in a variety of sanatoria till he came back to India in 1919 and died shortly after that.

Ramanujan's work was in an abstruse field of mathematics known as analytic number theory. It is not only his work which is awe inspiring; his style of working and his method is also intriguing. Einstein reportedly said that 'genius is 99% perspiration and 1% inspiration'. With Ramanujan the proportions were almost certainly reversed! He would come up with results which were true and yet have no proof for them. When asked, he would credit the goddess Namakal for revealing it to him in his dreams! Given that almost 6 decades after his death, mathematicians are still trying to prove some of his conjectures, these results were truly remarkable. Though it is somewhat hard to appreciate the beauty of some of Ramanujan's work without being familiar with the language of maths, Kanigel does an admirable job in giving the reader a flavor of it without the use of complicated maths.

The story of Ramanujan raises certain very interesting questions, some of which are alluded to in the book also. Firstly, the creative process itself becomes mysterious when one considers his work, without formal training in the discipline of mathematics. Could it be that mathematics, the rational science, is in fact closer to art and literature where the rational is not so important? How important is a formal training to be creative? There is also the argument that Ramanujan did what he did not in spite of but because of a lack of formal training in maths! This is because, the argument goes, formal instruction of maths numbs the creative impulse by an overdose of rigor and discipline. Another controversial aspect is the treatment meted out to him by his peers in India before he was recognized by Hardy. It needed an Englishman to stamp his seal of approval on his intellect for his countrymen to value him. One may argue that colonialism was responsible for this attitude. But is it not true that even now, we with the third (or maybe now even the second) largest scientific manpower, still look towards the West for approval? How is it that we have not been able to develop enough confidence in ourselves, like say the Soviets, to confront the West intellectually?

Robert Kanigel has written an evocative, inspiring and engrossing account of the life and work of Ramanujan.